

**FACT SHEET FOR NPDES PERMIT WA0038598
FLEISCHMANN'S VINEGAR COMPANY, INC.**

(Insert date of this fact sheet)

PURPOSE of this Fact Sheet

This fact sheet explains and documents the decisions Ecology made in drafting the proposed National Pollutant Discharge Elimination System (NPDES) permit for Fleischmann's Vinegar Company, Inc. (Fleischmann's Vinegar).

The Environmental Protection Agency (EPA) developed the NPDES permitting program as a tool to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." EPA delegated to Ecology the power and duty to write, issue, and enforce NPDES permits within Washington State. Both state and federal laws require any industrial facility to obtain a permit before discharging waste or chemicals to a water body.

An NPDES permit limits the types and amounts of pollutants the facility may discharge. Those limits are based either on (1) the pollution control or wastewater treatment technology available to the industry, or on (2) the receiving water's customary beneficial uses. This fact sheet complies with Section 173-220-060 of the Washington Administrative Code (WAC), which requires Ecology to prepare a draft permit *and accompanying fact sheet* for public evaluation before issuing an NPDES permit.

PUBLIC ROLE in the Permit

Ecology makes the draft permit and fact sheet available for public review and comment at least thirty (30) days before issuing the final permit to the facility operator (WAC 173-220-050). Copies of the fact sheet and draft permit for Fleischmann's Vinegar, NPDES permit WA0038598, are available for public review and comment from September 16, 2009, until the close of business October 15, 2009. For more details on preparing and filing comments about these documents, please see **Appendix A - Public Involvement**.

Before publishing the draft NPDES permit, Fleischmann's Vinegar, reviewed it for factual accuracy. Ecology corrected any errors or omissions about the facility's location, product type or production rate, discharges or receiving water, or its history.

After the public comment period closes, Ecology will summarize substantive comments and our responses to them. Ecology will include our summary and responses to comments to this Fact Sheet as **Appendix D - Response to Comments**, and publish it when issuing the final NPDES permit. Ecology will not revise the rest of the fact sheet, but the full document will become part of the legal history contained in the facility's permit file.

John Y. Diamant, P.E. prepared the accompanying permit and this fact sheet.

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I. INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later amendments in 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One mechanism for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System of permits (NPDES permits), administered by the federal Environmental Protection Agency (EPA). The EPA authorized the State of Washington to manage the NPDES permit program in our state. Our state legislature accepted the delegation and assigned the power and duty for conducting NPDES permitting and enforcement to Ecology. The legislature defined Ecology's authority and obligations for the wastewater discharge permit program in 90.48 RCW (Revised Code of Washington).

Ecology adopted rules describing how it exercises its authority:

- State Waste Discharge Program (Chapter 173-216 WAC)
- Procedures Ecology follows for issuing NPDES permits (chapter 173-220 WAC)
- Water quality criteria for surface waters (chapter 173-201A WAC) and for ground waters (chapter 173-200 WAC)
- Sediment management standards (chapter 173-204 WAC)
- Submission of Plans and Reports for Construction of Wastewater Facilities (chapter 173-240 WAC)

These rules require any industrial facility operator to obtain an NPDES permit before discharging wastewater to state waters. They also help define the basis for limits on each discharge and for performance requirements imposed by the permit.

Under the NPDES permit program and in response to a complete and accepted permit application Ecology must prepare a draft permit and accompanying fact sheet, and make them available for public review before final issuance. Ecology must also publish an announcement (public notice) telling people where they can read the draft permit, and where to send their comments, during a period of thirty days (WAC 173-220-050). (See **Appendix A--Public Involvement** for more detail about the Public Notice and Comment procedures). After the Public Comment Period ends, Ecology may make changes to the draft NPDES permit in response to comments. Ecology will summarize the responses to comments and any changes to the permit in **Appendix D**.

II. BACKGROUND INFORMATION

Table 1 - General Facility Information

Applicant:	Fleischmann's Vinegar Company, Inc.
Facility Address:	1115 Zehnder Street Sumner, WA 98390
Type of Facility:	Manufacturer of Vinegar
SIC Code	2099 Food Preparations (Not Elsewhere Classified)
Discharge Locations:	City of Sumner Sanitary (Outfall 001) Latitude: 47° 12' 33" N Longitude: 122° 14' 34" W White River (Outfall 002) Latitude: 47° 12' 35" N Longitude: 122° 14' 27" W



Figure 1. Facility Location Map

A. Facility Description

History

Fleischmann's Vinegar Company, Inc. (Fleischmann's Vinegar) owns and operates this older facility formerly operated as a yeast production plant. Currently, the facility manufactures vinegar and bottles and ships vinegar produced outside of the facility. The vinegar building is currently leased and sits on property owned by Robert Code.

Yeast production ended in January 1995. At that time, the facility discontinued land application of treated wastewater and pretreatment of wastewater in an aerobic lagoon prior to discharge to sanitary sewer. The shut-down of the yeast plant did not impact the discharge of non-contact cooling water to the White River. At the time of closure of the yeast plant and the beginning of the vinegar plant, Fleischmann's reached a new discharge agreement with the city of Sumner.

Fleischmann's Vinegar and the city of Sumner reached agreement in December 1996 establishing city of Sumner imposed limitations to Outfall #001 to protect the City's sanitary sewer system and publicly owned treatment works (POTW). The agreement reduced the discharge flow to 12,000 gallons per day (gpd). The BOD₅ and TSS loading remained constant at 142 lbs/day and 450 lbs/day, respectively; and the allowable BOD₅ and TSS concentrations increased to 1,418 mg/L and 4,500 mg/L, respectively.

Ecology issued the previous NPDES permit on April 23, 2004. This permit authorized the discharge of non-contact cooling water to the White River (Outfall #002) and treated process wastewater discharge to the city of Sumner sanitary sewer (Outfall #001). This facility is an EPA classified minor industrial facility.

Industrial Process

White vinegar is produced by the acetous fermentation of ethyl alcohol. The facility adds various nutrients to a dilute alcohol (ethyl alcohol) solution and acetobacter bacteria convert it to acetic acid in a submerged or trickle fermentation process. Fleischmann's Vinegar mixes alcohol and water (obtained from onsite artesian wells) in a mixing tank (see Figure 3 for a schematic flow diagram) and discharges this mixture to a fermentation tank. The vinegar foam from this tank is routed to the filtration process for product recovery. The product is filtered and stored for shipment. Wastewater from filter wash water, and storage tank wash water discharges to the sanitary sewer via Outfall #001.

The facility uses well water to cool compressors and to control temperature during the production of vinegar. This non-contact cooling water discharges to the White River via Outfall #002. No chlorine is added to the cooling water.

The end product is white distilled vinegar at 120 grain or 12 percent acetic acid. The facility reports production in units of grain gallons. A grain gallon of vinegar equals one gallon of vinegar at 10 percent concentration.

- 2003 2,774,000 grain gallons
- 2004 2,988,000 grain gallons
- 2005 3,966,000 grain gallons
- 2006 3,172,000 grain gallons

- 2007 3,079,000 grain gallons

The facility also purchases apple cider vinegar as a finished product that it repackages and sells.

Fleischmann's Vinegar has shut down the last two packed vinegar generators since November 2, 2007, and continues vinegar production only from its submerged fermentation acetators. This method of operation increases yield and reduces energy costs. Although it results in an overall reduction of vinegar capacity production by 15 percent, it still allows the facility to serve their customer base. The current property owner has applied for a demolition permit to remove some of the older buildings on the property which may require modifications to their storage tank for Outfall #001.

Wastewater Treatment and Discharge Outfalls

Outfall #001

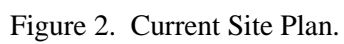
Outfall #001 discharges treated process wastewater to the city of Sumner sanitary sewer. Process wastewater consists of vinegar foam (maximum 120 gpd), filtration wash water (maximum 2,500 gpd), and tank wash water (maximum 10,000 gpd). The facility neutralizes the pH of the process wastewater in the wastewater tank. The city of Sumner samples each batch of the treated wastewater to ensure that the wastewater meets the conditions of their Agreement and the city of Sumner Municipal Code. If the data does not show any problems, the City authorizes the release of each batch of wastewater to their sewer system.

Outfall #002

Outfall #002 discharges non-contact cooling water to the White River through a single port. At this time, the facility has not provided Ecology with the details regarding this Outfall (location, diameter, pipe type).

The facility uses ground water for non contact cooling. Fleischmann's staff stated that the ground water well pumps cannot physically pump more than 0.58 MGD, however this cannot be verified without the installation of a flow meter. The installation of a flow meter for this outfall is required in the accompanying permit to appropriately monitor the flow/amount of the water being discharged to the White River.

No treatment for temperature is provided at this time for the discharge from this Outfall. The accompanying permit requires the facility to evaluate, recommend, and implement a temperature treatment system by the end of this permit cycle.



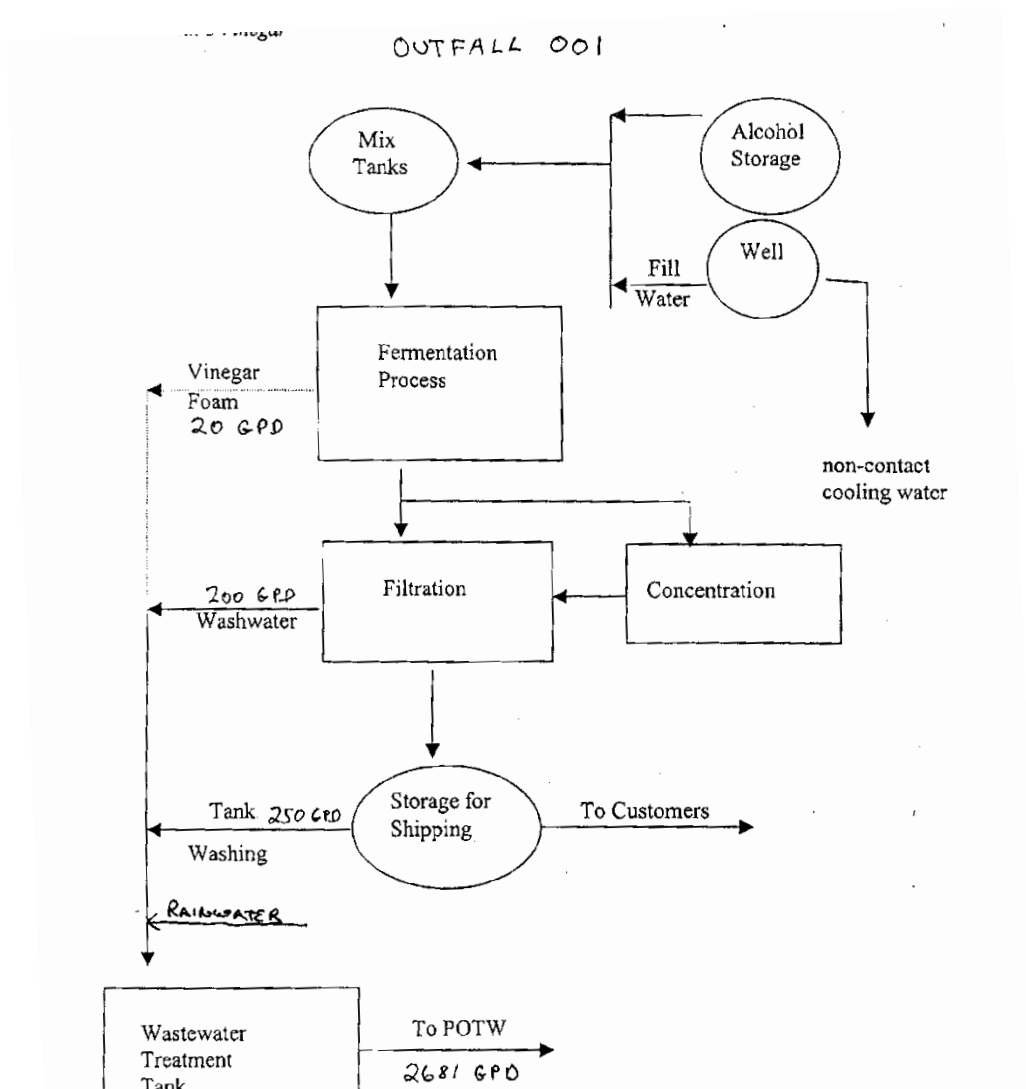


Figure 3. Outfall 001 Schematic Flow Diagram.

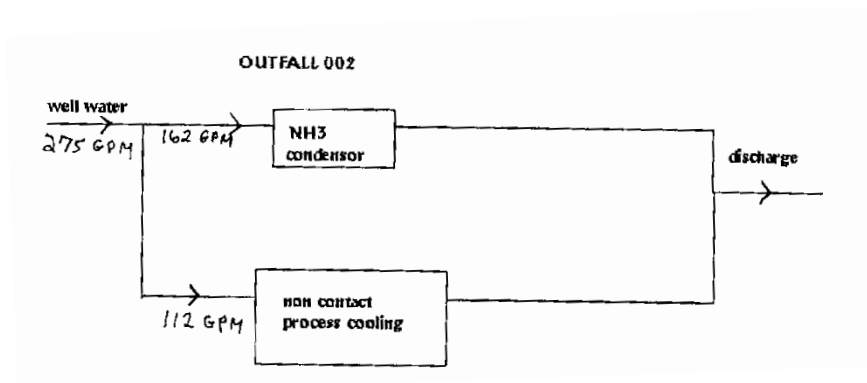


Figure 4. Outfall 002 Schematic Flow Diagram.

Solid Wastes

The facility must not allow solid wastes, or any components of solid wastes, to enter surface or groundwater. The accompanying permit requires Fleischmann's Vinegar to submit a Solid Waste Control Plan to describe their solid waste streams and how they dispose of it. Future permits for this facility will provide more detailed information concerning its solid waste.

B. Permit Status

Ecology received an application for permit renewal for Fleischmann's Vinegar (Sumner facility) on February 25, 2008. Ecology accepted it as complete on March 6, 2008.

Ecology re-authorized the previous permit for this facility issued on April 23, 2004. The re-authorized permit placed effluent limits on:

- Outfall #001 to City of Sumner STP: flow (gpd), BOD₅ concentration (mg/L), BOD₅ wasteload (lbs/day), TSS concentration (mg/L), TSS wasteload (lbs/day), and pH (standard units (s.u.))
- Outfall #002 to White River: flow (MGD), ammonia concentration (mg/L), ammonia wasteload (lbs/day), temperature (°F), and pH (s.u.).

C. Summary of Compliance with Previous Permit Issued

Ecology staff last conducted a non-sampling compliance inspection on December 12, 2007.

Fleischmann's Vinegar has (for the most part) complied with the effluent limits and permit conditions throughout the duration of the permit issued on April 23, 2004. Ecology assessed facility compliance based on its review of the facility's Discharge Monitoring Reports (DMRs) and on inspections conducted by Ecology.

The facility exceeded only permit limits as summarized below:

- May 2005: Exceeded both the maximum daily BOD₅ concentration and mass-based limit of 1,418 mg/L and 142 lbs/day, respectively for Outfall #001 (to the city of Sumner STP). The reported BOD₅ concentration was 2,084 mg/L and BOD₅ wasteload discharged was 209 lbs/day.
- November 2005: Exceeded both the maximum daily BOD₅ concentration and mass-based limit of 1,418 mg/L and 142 lbs/day, respectively for Outfall #001 (to the city of Sumner STP). The reported BOD₅ concentration was 1,720 mg/L and BOD₅ wasteload discharged was 172 lbs/day.
- December 2005: Exceeded both the maximum daily BOD₅ concentration and mass-based limit of 1,418 mg/L and 142 lbs/day, respectively for Outfall #001 (to the city of Sumner STP). The reported BOD₅ concentration was 1,981 mg/L and BOD₅ wasteload discharged was 198 lbs/day.

D. Wastewater Characterization

Ecology evaluated the concentrations of pollutants in the discharges reported in the NPDES permit renewal application and in discharge monitoring reports (DMRs). The tabulated data represents the quality of the effluent discharged from July 1, 2004, through April 30, 2009 as reported on DMRs. The effluent is characterized as follows:

Table 2. Summary of Pollutant Concentrations from Outfalls 001 and 002 Discharges.

Parameter	Average Concentration	Maximum Concentration
Outfall #001 (to the city of Sumner STP)		
Flow (gpd)	3,334	12,000
BOD ₅ (mg/L)	376	1,059
BOD ₅ (lbs/day)	34	106
TSS (mg/L)	335	430
TSS (lbs/day)	32	43
pH (s.u.)	Range: 6.00 – 9.00; Average: 7.18	
Outfall #002 (to the White River)		
Flow (MGD)	0.58	0.58
Ammonia (mg/L)	3.9	3.9
Ammonia (lbs/day)	0.23	0.24
Temperature (°F)	66	66
pH (s.u.)	Range: 6.82 – 8.40; Average: 7.64	

E. Description of the Receiving Water

Fleischmann's Vinegar Outfall #002 discharges non-contact cooling water to the White River (fresh water), in Sumner, WA.

The nearest Ecology water quality monitoring station located in Auburn, Washington does not provide any meaningful data since it is significantly upstream and in the middle of an urban area. Ecology has reviewed and used other water quality data to assess segments of the White River as part of the evaluations to develop the 303(d) list. Please refer to Subsection D (Designated Uses and Surface Water Quality Criteria) in Section III (Proposed Permit Conditions) for more information regarding ambient data and the 303(d) listings.

F. SEPA Compliance

Regulation exempts reissuance or modification of any wastewater discharge permit from the SEPA process as long as the permit contains conditions are no less stringent than state rules and regulations. The exemption applies only to existing discharges, not to new discharges.

III. PROPOSED PERMIT CONDITIONS

Federal and State regulations require that effluent limits in an NPDES permit must be either technology or water quality-based.

- Technology-based limits are based upon the treatment methods available to treat specific pollutants. Technology-based limits are set by the EPA and published as a regulation, or Ecology develops the limit on a case-by-case basis (40 CFR 125.3, and chapter 173-220 WAC). Dischargers must treat wastewater using all known, available, reasonable methods of prevention, control, and treatment (AKART).
- Water quality-based limits are calculated so that the effluent will comply with the Surface Water Quality Standards (chapter 173-201A WAC), Ground Water Standards (chapter 173-200 WAC),

Sediment Quality Standards (chapter 173-204 WAC) or the National Toxics Rule (40 CFR 131.36).

- Effects of the pollutants to the POTW (local limits). Wastewater must not interfere with the operation of the POTW.
- Applicable requirements of other local, state and federal laws.
- Ecology must apply the most stringent of these limits to each parameter of concern. These limits are described below.

The limits in this permit reflect information received in the application and from supporting reports (engineering, hydrogeology, etc.). Ecology evaluated the permit application and determined the limits needed to comply with the rules adopted by the state of Washington. Ecology does not develop effluent limits for all reported pollutants. Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation.

Nor does Ecology usually develop permit limits for pollutants that were not reported in the permit application but that may be present in the discharge. The permit does not authorize discharge of the non-reported pollutants. During the five-year permit term, the facility's effluent discharge conditions may change from those conditions reported in the permit application. The facility must notify Ecology, as described in 40 CFR 122.42(a), if significant changes occur in any constituent. Industries may be in violation of their permit until Ecology modifies the permit to reflect additional discharge of pollutants.

A. Design Criteria

According to WAC 173-220-150 (1)(g), neither flows nor waste loadings may exceed approved design criteria, however, Ecology does not have an engineering report that specifies the design criteria for the wastewater treatment plant at this facility.

B. Effluent Limits Based On Local Limits

To protect the city of Sumner publicly owned treatment works (POTW) from pass-through, interference, concentrations of toxic chemicals that would impair beneficial or designated uses of sludge, or potentially hazardous exposure levels, Ecology believes it necessary to impose limits for certain parameters. Ecology based these limits on local limits established by the city of Sumner as codified in ordinance and in the city of Sumner's agreement with Fleischmann's Vinegar.

Applicable local limits for the discharge from Outfall #001 include the following:

Through Special Agreement with the city of Sumner

- **Flow** – daily maximum flow limit 12,000 gallons per day (gpd).
- **BOD** – daily maximum concentration limit of 1,418 mg/L; daily loading limit of 142 lbs/day.
- **TSS** – daily maximum concentration limit of 4,500 mg/L; daily loading limit of 450 lbs/day.

Through City of Sumner Local Limits (Municipal Code Chapter 13.16)

- ***pH*** – not to be below six or above nine.

C. Technology-Based Effluent Limits

All waste discharge permits issued by Ecology must specify conditions requiring available and reasonable methods of prevention, control, and treatment (AKART) of discharges to waters of the state (RCW 90.48).

There are no Federal Categorical Effluent Limits established which apply to the vinegar manufacturing. Ecology establishes performance-based effluent limits based upon submitted data which sets the level of achievable concentrations of the pollutant(s) using current treatment, best management practices, and/or operations. Performance-based limits may represent technology-based limits when AKART is achieved.

Applicable technology-based limits for the discharge from Outfall #002 include the following:

- ***Flow*** – The proposed permit retains the maximum daily and average monthly performance-based flow limit of 0.58 MGD established in the previous permit.
- ***Ammonia*** – The proposed permit retains the maximum daily and average monthly performance-based limits of 0.81 mg/L and 3.9 lbs/day established in the previous permit.
- ***Temperature*** – The proposed permit includes new limits for temperature based on performance of the facility (see Appendix C for the spreadsheet calculations). Fleischmann's Vinegar is required to develop an Engineering Report and construction documents to evaluate, recommend, and implement treatment to control temperature in Outfall #002 before discharging it into the White River.
- ***pH*** – The proposed permit retains the technology-based limits established in the previous permit. The discharge must meet a daily minimum limit of 6.0 and a daily maximum limit of 9.0.

D. Surface Water Quality-Based Effluent Limits

The Washington State Surface Water Quality Standards (chapter 173-201A WAC) were designed to protect existing water quality and preserve the beneficial uses of Washington's surface waters. Waste discharge permits must include conditions that ensure the discharge will meet established surface water quality standards (WAC 173-201A-510). Water quality-based effluent limits may be based on an individual waste load allocation or on a waste load allocation developed during a basin wide total maximum daily loading study (TMDL).

Numerical Criteria for the Protection of Aquatic Life and Recreation

Numerical water quality criteria are published in the Water Quality Standards for Surface Waters (chapter 173-201A WAC). They specify the levels of pollutants allowed in receiving water to protect aquatic life and recreation in and on the water. Ecology uses numerical criteria along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limits, the discharge must meet the water quality-based limits.

Numerical Criteria for the Protection of Human Health

The U.S. EPA has published 91 numeric water quality criteria for the protection of human health that are applicable to dischargers in Washington State (40 CFR 131.36). These criteria are designed to protect humans from exposure to pollutants linked to cancer and other diseases, based on consuming fish and shellfish and drinking contaminated surface waters. The Water Quality Standards also include radionuclide criteria to protect humans from the effects of radioactive substances.

Narrative Criteria

Narrative water quality criteria (e.g., WAC 173-201A-240(1); 2006) limit the toxic, radioactive, or other deleterious material concentrations that the facility may discharge to levels below those which have the potential to:

- Adversely affect designated water uses.
- Cause acute or chronic toxicity to biota.
- Impair aesthetic values.
- Adversely affect human health.

Narrative criteria protect the specific designated uses of all fresh waters (WAC 173-201A-200, 2006) and of all marine waters (WAC 173-201A-210, 2006) in the State of Washington.

Antidegradation

The purpose of Washington's Antidegradation Policy (WAC 173-201A-300-330; 2006) is to:

- Restore and maintain the highest possible quality of the surface waters of Washington.
- Describe situations under which water quality may be lowered from its current condition.
- Apply to human activities that are likely to have an impact on the water quality of surface water.
- Ensure that all human activities likely to contribute to a lowering of water quality, at a minimum, apply all known, available, and reasonable methods of prevention, control, and treatment (AKART).
- Apply three Tiers of protection (described below) for surface waters of the state.

Tier I ensures existing and designated uses are maintained and protected and applies to all waters and all sources of pollutions. Tier II ensures that waters of a higher quality than the criteria assigned are not degraded unless such lowering of water quality is necessary and in the overriding public interest. Tier II applies only to a specific list of polluting activities. Tier III prevents the degradation of waters formally listed as "outstanding resource waters," and applies to all sources of pollution.

This facility must meet Tier I requirements.

- Dischargers must maintain and protect existing and designated uses. Ecology may not allow any degradation that will interfere with, or become injurious to, existing or designated uses, except as provided for in chapter 173-201A WAC.

Ecology's analysis described in this section of the fact sheet demonstrates that the existing and designated uses of the receiving water will be protected under the conditions of the accompanying permit.

Ecology determined that this facility must also meet Tier II requirements. A Tier II analysis focuses on evaluating and incorporating feasible alternatives that would eliminate or significantly reduce the level of degradation. The analysis also includes a review of the benefits and costs associated with allowing the lowering of water quality, and prohibit actions from lowering water quality that do not provide overriding public benefits.

A Tier II analysis is not required at this time but is required when all three of the following conditions occur:

- The facility is planning a new or expanded action.
- Ecology regulates or authorizes the action.
- The action has the potential to cause measurable degradation to existing water quality at the edge of a chronic mixing zone.

Tier III requirements do not apply to this facility.

Mixing Zones

A mixing zone is the defined area in the receiving water surrounding the discharge port(s), where wastewater mixes with receiving water. Within mixing zones the pollutant concentrations may exceed water quality numeric criteria, so long as the diluting wastewater doesn't interfere with designated uses of the receiving water body (e.g., recreation, water supply, and aquatic life and wildlife habitat, etc.). The pollutant concentrations outside of the mixing zones must meet water quality numeric criteria.

State and federal rules allow mixing zones because the concentrations and effects of most pollutants diminish rapidly after discharge, due to dilution. Ecology defines mixing zone sizes to limit the amount of time any exposure to the end-of-pipe discharge could harm water quality, plants, or fish.

The state's water quality standards allow Ecology to authorize mixing zones for the facility's permitted wastewater discharges only if those discharges already receive all known, available, and reasonable methods of prevention, control and treatment (AKART). Mixing zones typically require compliance with water quality criteria within a specified distance from the point of discharge; and use no more than 25 percent of the available width of the water body for dilution. Ecology uses modeling to estimate the amount of mixing within the mixing zone and determine the potential for violating the water quality standards at the edge of the mixing zone and derive any necessary effluent limits. Steady-state models are the most frequently used tools for conducting mixing zone analyses. Ecology chooses values for each effluent and for receiving water variables that correspond to the time period when the most critical condition is likely to occur (see Ecology's Permit Writer's Manual). Each critical condition parameter (by itself) has a low probability of occurrence and the resulting dilution factor is conservative. The term "reasonable worst-case" applies to these values.

The mixing zone analysis produces a numerical value called a dilution factor (DF). A dilution factor represents the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. For example, a dilution factor of 10 means the effluent comprises 10 percent by volume and the receiving water comprises 90 percent of the total volume at the boundary of the mixing zone. Ecology uses dilution factors with the water quality criteria to calculate reasonable potentials and effluent limits. Water quality standards include both aquatic life-based criteria and human health-based criteria. The former are applied at both the acute and chronic mixing zone boundaries; the latter are applied only at the chronic boundary. The concentration of pollutants at the boundaries of any of these mixing zones may not exceed the numerical criteria for that zone.

Each aquatic life **acute** criterion is based on the assumption that organisms are not exposed to that concentration for more than one-hour and more often than one exposure in three years. Each aquatic life **chronic** criterion is based on the assumption that organisms are not exposed to that concentration for more than four consecutive days and more often than once in three years.

The two types of human health-based water quality criteria distinguish between those pollutants linked to non-cancer effects (non-carcinogenic) and those linked to cancer effects (carcinogenic). The human health-based water quality criteria incorporate several exposure and risk assumptions. These assumptions include:

- A 70-year lifetime of daily exposures.
- An ingestion rate for fish or shellfish measured in kg/day.
- An ingestion rate of two liters/day for drinking water
- A one-in-one-million cancer risk for carcinogenic chemicals.

Ecology previously conducted mixing zone modeling to estimate an acute and chronic mixing zone. Ecology previously issued temporary mixing zones to Fleischmann's Vinegar in conjunction with a compliance schedule to construct a cooling tower to provide temperature treatment for Outfall #002 in their previous permit. The accompanying permit retains the previously issued temporary mixing zones.

In lieu of installing a cooling tower as required by the previous permit, Fleischmann's has been negotiating with the city of Sumner during the past permit cycle regarding its water rights to the well water it uses for non-contact cooling. If the parties reach agreement, the city of Sumner would accept the discharge from Outfall #002 or Fleischmann's Vinegar would construct a no discharge cooling system. For approximately five years, the parties have not reached agreement. Fleischmann's Vinegar must still meet the requirements of the state and federal regulations and law. Therefore, the accompanying permit requires the facility to conduct a mixing zone study (if necessary), conduct a reasonable potential evaluation and determine AKART for its discharge. If the reasonable potential determination shows the facility is violating water quality standards for temperature the engineering report must also evaluate how it will come into compliance with standards.

E. Designated Uses and Surface Water Quality Criteria

Applicable designated uses and surface water quality criteria are defined in chapter 173-201A WAC. In addition, the U.S. EPA set human health criteria for toxic pollutants (40 CFR 131.36). Criteria applicable to this facility's discharge are summarized below in Table 3.

- Aquatic Life Uses are designated based on the presence of, or the intent to provide protection for, the key uses. All indigenous fish and non-fish aquatic species must be protected in waters of the state in addition to the key species. The Aquatic Life Uses for this receiving water are identified below.

Table 3. Aquatic Life Uses & Associated Criteria

Salmonid Spawning, Rearing, And Migration	
Temperature Criteria – Highest 7DAD MAX	17.5°C (63.5°F)
Dissolved Oxygen Criteria – Lowest 1 Day Minimum	8.0 mg/L
Turbidity Criteria	<ul style="list-style-type: none"> • 5 NTU over background when the background is 50 NTU or less; or • A 10 percent increase in turbidity when the background turbidity is more than 50 NTU
Total Dissolved Gas Criteria	Total dissolved gas shall not exceed 110 percent of saturation at any point of sample collection
pH Criteria	pH shall be within the range of 6.5 to 8.5 with a human-caused variation within the above range of less than 0.5 units

- The recreational uses are extraordinary primary contact recreation, primary contact recreation, and secondary contact recreation. The recreational uses for this receiving water are identified below.

Table 4. Recreational Uses & Associated Criteria

Recreational use	Criteria
Primary Contact Recreation	Fecal coliform organism levels must not exceed a geometric mean value of 100 colonies /100 mL, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 200 colonies /100 mL

- The **water supply uses** are domestic, agricultural, industrial, and stock watering.
- The **miscellaneous fresh water uses** are wildlife habitat, harvesting, commerce and navigation, boating, and aesthetics.

Impairment Evaluation

The segment of the White River is not listed on the 2008 303(d) list for any parameters at this time. However, it is important to note the listing status for the segments immediately upstream and downstream from the segment receiving the effluent from Outfall 002. Table 5 summarizes the listing information.

Table 5. White River Upstream and Downstream Impairment Listing Information.

Listing Status		
Parameter	Upstream Waterbody Segment	Downstream Waterbody Segment

Temperature	Impaired	Waters of Concern
Fecal Coliform	Not Listed	Impaired
Dissolved Oxygen	Waters of Concern	Not Listed
pH	Not listed	Meets Water Quality Standard
Ammonia	Not listed	Meets Water Quality Standard

Table 5 shows that the White River may be impaired for temperature in the vicinity of Outfall #002. Recent data collected by Ecology (Puyallup and White Rivers Dissolved Oxygen and Temperature Data Summary Report, May 2008) suggest that the White River near Sumner (River Mile 1.8) exceeded the temperature standard three days in 2006 (August 17-19, 2006). It is possible the river 7-DAD Max temperature may have exceeded 17.0 degrees Celsius; but the study's data only began on August 14, 2006, and the 7-DAD Max temperature gradually tapers downward to 13.9 (on October 6, 2006) at the end of the data period. The proposed permit requires Fleischmann's Vinegar to collect receiving water temperature data in the receiving water so Ecology can determine if compliance with temperature criteria is/will be achieved. The accompanying permit establishes new temperature limits based on performance to minimize any potential impacts until the assessment can be completed.

Ecology conducted a total maximum daily load (TMDL) study for dissolved oxygen for the Puyallup River that established BOD₅ and NH₃ wasteload allocations for several point source dischargers including Fleischmann's Vinegar. The accompanying permit includes BOD₅ limits (in mg/L and lbs/day) to ensure that the facility meets the BOD₅ wasteload allocations. The previously established ammonia limits are already more stringent than the wasteload allocation established in the TMDL. Therefore, compliance with the ammonia allocation is already being achieved. Ecology established BOD₅ and ammonia allocations for Fleischmann's Vinegar as 35 (lbs/day) and 21.3 (lbs/day), respectively (Ecology 1994).

F. Evaluation of Surface Water Quality -Based Effluent Limits for Numeric Criteria

Pollutants in an effluent may affect the aquatic environment near the point of discharge (near field) or at a considerable distance from the point of discharge (far field). Toxic pollutants, for example, are near-field pollutants--their adverse effects diminish rapidly with mixing in the receiving water. Conversely, a pollutant such as biological oxygen demand (BOD) is a far-field pollutant whose adverse effect occurs away from the discharge even after dilution has occurred. Thus, the method of calculating surface water quality-based effluent limits varies with the point at which the pollutant has its maximum effect.

Ecology determined the impacts of oxygen deficiency, temperature, and pH as described below. The derivation of surface water quality-based limits also takes into account the variability of pollutant concentrations in both the effluent and the receiving water.

BOD₅ and ammonia—As described above, Ecology developed a dissolved oxygen TMDL which established BOD₅ and ammonia wasteload allocations to the Fleischmann's Vinegar facility. Based on an analysis of the existing data, the facility has discharged ammonia at levels far lower than its wasteload allocation. Therefore, Ecology has retained the previously established performance-based ammonia limitations since they are more stringent.

The previous permit did not establish BOD₅ limits for Outfall #002. Since the source for the non-contact cooling water is groundwater, Ecology believes that BOD₅ discharged from Outfall #002 will be negligible. The accompanying permit requires the facility to collect two years of BOD₅ data so Ecology can assess whether or not it should limit BOD₅ in the future. If BOD₅ limits are needed, Ecology may modify the permit or incorporate BOD₅ limits when it reissues the permit in the future.

Temperature--The state temperature standards (WAC 173-201A-200-210 and 600-612) include multiple elements:

- Annual summer maximum threshold criteria (June 15 to September 15)
- Supplemental spawning and rearing season criteria (September 15 to June 15)
- Incremental warming restrictions
- Protections against acute effects

Ecology evaluates each criterion independently to determine reasonable potential and derive permit limits.

- **Annual summer maximum and supplementary spawning/rearing criteria**

Each water body has an annual maximum temperature criterion [WAC 173-201A-200(1) (c), 210(1)(c), and Table 602]. These threshold criteria (e.g., 12, 16, 17.5, 20°C) protect specific categories of aquatic life by controlling the effect of human actions on summer temperatures.

Some waters have an additional threshold criterion to protect the spawning and incubation of salmonids (9°C for char and 13°C for salmon and trout) [WAC 173-201A-602, Table 602]. These criteria apply during specific date-windows.

The threshold criteria apply at the edge of the chronic mixing zone. Criteria for most fresh waters are expressed as the highest 7-Day average of daily maximum temperature (7-DADMax). The 7-DADMax temperature is the arithmetic average of seven consecutive measures of daily maximum temperatures. Criteria for marine waters and some fresh waters are expressed as the highest 1-Day annual maximum temperature (1-DMax).

- **Incremental warming criteria**

The water quality standards limit the amount of warming human sources can cause under specific situations [WAC 173-201A-200(1)(c)(i)-(ii), 210(1)(c)(i)-(ii)]. The incremental warming criteria apply at the edge of the chronic mixing zone.

At locations and times when background temperatures are cooler than the assigned threshold criterion, point sources are permitted to warm the water by only a defined increment. These increments are permitted only to the extent doing so does not cause temperatures to exceed either the annual maximum or supplemental spawning criteria.

At locations and times when a threshold criterion is being exceeded due to natural conditions, all human sources, considered cumulatively, must not warm the water more than 0.3°C above the naturally warm condition.

When Ecology has not yet completed a TMDL, our policy allows each point source to warm water at the edge of the chronic mixing zone by 0.3°C. This is true regardless of the background temperature and even if doing so would cause the temperature at the edge of a standard mixing zone to exceed the numeric threshold criteria. Allowing a 0.3°C warming for each point source is reasonable and protective where the dilution factor is based on 25 percent or less of the critical

flow. This is because the fully mixed effect on temperature will only be a fraction of the 0.3°C cumulative allowance (0.075°C or less) for all human sources combined.

- **Temperature Acute Effects**

Instantaneous lethality to passing fish: The upper 99 ercentile daily maximum effluent temperature must not exceed 33°C; unless a dilution analysis indicates ambient temperatures will not exceed 33°C 2-seconds after discharge.

General lethality and migration blockage: Measurable (0.3°C) increases in temperature at the edge of a chronic mixing zone are not allowed when the receiving water temperature exceeds either a 1DMax of 23°C or a 7DADMax of 22°C.

Lethality to incubating fish: Human actions must not cause a measurable (0.3°C) warming above 17.5°C at locations where eggs are incubating.

Data Collection Required: Ecology does not have sufficient information on the temperature of the effluent or the receiving water to determine compliance with water quality criteria for temperature. The proposed permit requires Fleischmann’s Vinegar to monitor effluent and receiving water temperature and report the results to Ecology.

Turbidity -- Due to the source of Fleischmann’s Vinegar’s cooling water (groundwater) and the use for non-contact cooling, Ecology expects no violations of the turbidity criteria.

Toxic Pollutants—Federal regulations (40 CFR 122.44) require Ecology to place limits in NPDES permits on toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the surface water quality criteria. Ecology does not exempt facilities with technology-based effluent limits from meeting the surface water quality standards. Since the source of the non-contact cooling water is from groundwater, Ecology does not anticipate that toxic pollutants are of concern.

Ecology reserves the right to require the collection of any additional monitoring data to re-evaluate the reasonable potential to exceed water quality standards for any of the toxic pollutants at any time.

G. Whole Effluent Toxicity

The water quality standards for surface waters forbid discharge of effluent that causes toxic effects in the receiving waters. Many toxic pollutants cannot be measured by commonly available detection methods. However, laboratory tests can measure toxicity directly by exposing living organisms to the wastewater and measuring their responses. These tests measure the aggregate toxicity of the whole effluent, so this approach is called whole effluent toxicity (WET) testing. Some WET tests measure acute toxicity and other WET tests measure chronic toxicity.

Using the screening criteria in WAC 173-205-040, Ecology determined that toxic effects caused by unidentified pollutants in the effluent are unlikely. Therefore, this permit does not require WET testing. Ecology may require WET testing in the future, if it receives information indicating that toxicity may be present in this effluent.

H. Human Health

Washington’s water quality standards include 91 numeric human health-based criteria that Ecology must consider when writing NPDES permits. These criteria were established in 1992 by the U.S. EPA in its

National Toxics Rule (40 CFR 131.36). The National Toxics Rule allows states to use mixing zones to evaluate whether discharges comply with human health criteria.

Ecology determined the applicant's discharge does not contain chemicals of concern based on existing data or knowledge. Ecology will reevaluate the discharge for impacts to human health at the next permit reissuance.

I. Sediment Quality

The aquatic sediment standards (WAC 173-204) protect aquatic biota and human health. Under these standards Ecology may require a facility to evaluate the potential for its discharge to cause a violation of sediment standards (WAC 173-204-400). You can obtain additional information about sediments at the Aquatic Lands Cleanup Unit website. <http://www.ecy.wa.gov/programs/tcp/smu/sediment.html>

Through a review of the discharger characteristics and of the effluent characteristics, Ecology determined that this discharge has no reasonable potential to violate the Sediment Management Standards.

J. Ground Water Quality Limits

The Ground Water Quality Standards, (chapter 173-200 WAC), protect beneficial uses of ground water. Permits issued by Ecology must not allow violations of those standards (WAC 173-200-100).

Fleischmann's Vinegar does not discharge wastewater to ground and therefore Ecology imposed no permit limits to protect ground water.

K. Comparison of Effluent Limits with Limits of the Previous Permit Issued on April 23, 2004

Table 6. Comparison of Effluent Limits

Parameter	Basis of Limit	Previous Effluent Limits		Proposed Effluent Limits	
		Average Monthly	Maximum Daily	Average Monthly	Maximum Daily
Outfall #001 – to the city of Sumner POTW					
Flow, gpd	Technology	12,000	12,000	12,000	12,000
BOD ₅ , mg/L	Technology	1,418	1,418	1,418	1,418
BOD ₅ , lbs/day	Technology	142	142	142	142
TSS, mg/L	Technology	4,500	4,500	4,500	4,500
TSS, lbs/day	Technology	450	450	450	450
pH	Technology	Daily minimum is equal to or greater than 6 and the daily maximum is less than or equal to 9.		Daily minimum is equal to or greater than 6.0 and the daily maximum is less than or equal to 9.0.	
Outfall #002 – to the White River					
Flow, MGD	Technology	0.58	0.58	0.58	0.58
Ammonia, mg/L	Technology	0.81	0.81	0.81	0.81
Ammonia, lbs/day	Technology	3.9	3.9	3.9	3.9

Parameter	Basis of Limit	Previous Effluent Limits		Proposed Effluent Limits	
		Average Monthly	Maximum Daily	Average Monthly	Maximum Daily
Temperature, °C	Technology (Interim) Water Quality (Final)	30	30	25.5	23.3
pH	Technology	Daily minimum is equal to or greater than 6 and the daily maximum is less than or equal to 9.		Daily minimum is equal to or greater than 6.0 and the daily maximum is less than or equal to 9.0.	

IV. MONITORING REQUIREMENTS

Ecology requires monitoring, recording, and reporting (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and that the discharge complies with the permit's effluent limits.

Fleischmann's Vinegar is required to conduct some additional temperature and BOD₅ monitoring under the accompanying permit. This additional monitoring will help to provide information to better evaluate whether or not BOD₅ is a parameter of concern in Outfall #002's discharge. The additional temperature data collected will also provide information necessary to conduct a proper evaluation of various alternatives to provide temperature treatment and whether or not temperature criteria can be met in the White River.

The monitoring schedule is detailed in the proposed permit under Special Condition S2. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

A. Lab Accreditation

Ecology requires that facilities must use a laboratory registered or accredited under the provisions of chapter 173-50 WAC, *Accreditation of Environmental Laboratories* to prepare all monitoring data (with the exception of certain parameters).

V. OTHER PERMIT CONDITIONS

A. Reporting and Recordkeeping

Ecology based permit condition S3. on our authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-220-210).

B. Operations and Maintenance Manual

The accompanying permit (Special Condition S4.) requires Fleischmann's Vinegar to develop an Operations and Maintenance (O&M) Manual. The O&M Manual must be reviewed annually and revised as necessary to reflect current conditions at the facility. If no update is needed at the time of annual review, a letter must be submitted stating that no changes to the O&M Manual are needed.

C. Solid Waste Control Plan

Fleischmann's Vinegar could cause pollution of the waters of the state through inappropriate disposal of solid waste or through the release of leachate from solid waste.

This proposed permit requires this facility to develop a solid waste control plan to prevent solid waste from causing pollution of waters of the state. The plan must be submitted to Ecology for approval (RCW 90.48.080). Ecology has a focus sheet located on the internet which provides some guidance to industrial facilities on how to develop a Solid Waste Control Plan:.

D. Spill Plan

This facility stores a quantity of chemicals on-site that have the potential to cause water pollution if accidentally released. Ecology can require a facility to develop best management plans to prevent this accidental release [section 402(a)(1) of the Federal Water Pollution Control Act (FWPCA) and RCW 90.48.080].

Fleischmann's Vinegar developed a plan for preventing the accidental release of pollutants to state waters and for minimizing damages if such a spill occurs. The proposed permit requires the facility to review this plan, update it as necessary, and submit it to Ecology.

E. Temperature Monitoring Quality Assurance Project Plan and Annual Data Reports

The accompanying permit (Special Condition S7.) requires Fleischmann's Vinegar to develop a Temperature Monitoring Quality Assurance Project Plan (QAPP). The QAPP must provide a plan to install, calibrate, maintain, and collect temperature data from Outfall #002 and upstream along the White River. Special Condition S7. also requires Fleischmann's Vinegar to submit annual temperature data reports containing all of the data collected by the thermistors.

F. Engineering Report and Plans and Specifications

The accompanying permit (Special Condition S9.) requires Fleischmann's Vinegar to develop an Engineering Report and Plans and Specifications to evaluate, design, and construct a temperature treatment system which will comply with the accompanying permit's final discharge limitations for Outfall #002.

G. Application for Permit Renewal

The accompanying permit (Special Condition S10.) requires Fleischmann's Vinegar to complete and submit an Application for Permit Renewal.

H. General Conditions

Ecology bases the standardized General Conditions on state and federal law and regulations. They are included in all individual industrial NPDES permits issued by Ecology.

VI. PERMIT ISSUANCE PROCEDURES

A. Permit Modifications

Ecology may modify this permit to impose numerical limits, if necessary to comply with water quality standards for surface waters, with sediment quality standards, or with water quality standards for ground

waters, after obtaining new information from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

Ecology may also modify this permit to comply with new or amended state or federal regulations.

B. Proposed Permit Issuance

This proposed permit includes all statutory requirements for Ecology to authorize a wastewater discharge. The permit includes limits and conditions to protect human health and aquatic life, and the beneficial uses of waters of the State of Washington. Ecology proposes to issue this permit for a term of almost 5 years. Due to workload issues, this permit could not be renewed before the expiration of the previous permit. Ecology decided to set the expiration date of the accompanying permit at June 30, 2014 to keep this permit in synch with other permits in the South Puget Sound Water Quality Management Area (WQMA).

VII. REFERENCES FOR TEXT AND APPENDICES

City of Sumner

City Municipal Code Chapter 13.16 Sewers. Updated May 18, 2009.

Environmental Protection Agency (EPA)

1991. Technical Support Document for Water Quality-based Toxics Control. EPA/505/2-90-001.

1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington, D.C.

1985. Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water. EPA/600/6-85/002a.

1983. Water Quality Standards Handbook. USEPA Office of Water, Washington, D.C.

Fleischmann's Vinegar

2004. Stormwater Pollution Prevention Plan [and Spill Plan].

1996. Letter to Les MacDonald, P.E. regarding: City of Sumner's agreement to increase Fleischmann's BOD Maximum Daily Flow. Dated December 9, 1996.

Tsivoglou, E.C., and J.R. Wallace.

1972. Characterization of Stream Reaeration Capacity. EPA-R3-72-012. (Cited in EPA 1985 op.cit.)

Washington State Department of Ecology.

Internet Site. Laws and Regulations (<http://www.ecy.wa.gov/laws-rules/index.html>)

Internet Site. Permit and Wastewater Related Information
(<http://www.ecy.wa.gov/programs/wq/wastewater/index.html>)

2008. Puyallup and White Rivers Dissolved Oxygen and Temperature Data Summary Report. Publication Number 08-03-013.

2007. Focus Sheet on Solid Waste Control Plan, Developing a Solid Waste Control Plan for Industrial Wastewater Discharge Permittees. Publication Number 07-10-024

1994. Permit Writer's Manual. Publication Number 92-109.
1994. Addendum to the 1993 Puyallup River TMDL Report. Memorandum from Greg Pelletier to Will Kendra. July 22, 1994. Publication Number 94-e36.
1993. Puyallup River Total Maximum Daily Load for Biochemical Oxygen Demand, Ammonia, and Residual Chlorine. Publication Number 96-326.
- Wright, R.M., and A.J. McDonnell.
1979. In-stream Deoxygenation Rate Prediction. Journal Environmental Engineering Division, ASCE. 105(E2). (Cited in EPA 1985 op.cit.)

APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

Ecology proposes to reissue a permit to Fleischmann's Vinegar Company, Inc. (Fleischmann's Vinegar). The permit prescribes operating conditions and wastewater discharge limits. This fact sheet describes the facility and Ecology's reasons for requiring permit conditions.

Ecology placed a Public Notice of Application on June 9, 2009, and June 16, 2009, in the *Tacoma News Tribune* to inform the public about the submitted application and to invite comment on the reissuance of this permit.

Ecology will place a Public Notice on September 16, 2009, in *Puyallup Herald* to inform the public and to invite comment on the proposed reissuance of this National Pollutant Discharge Elimination System permit as drafted.

The Notice –

- Tells where copies of the draft Permit and Fact Sheet are available for public evaluation (a local public library, the closest Regional or Field Office, posted on our website.).
- Offers to provide the documents in an alternate format to accommodate special needs.
- Asks people to tell us how well the proposed permit would protect the receiving water.
- Invites people to suggest fairer conditions, limits, and requirements for the permit.
- Invites comments on Ecology's determination of compliance with antidegradation rules.
- Urges people to submit their comments, in writing, before the end of the comment period
- Tells how to request a public hearing about the proposed NPDES Permit.
- Explains the next step(s) in the permitting process.

Ecology has published a document entitled **Frequently Asked Questions about Effective Public Commenting** which is available on our website at <http://www.ecy.wa.gov/biblio/0307023.html>.

You may obtain further information from Ecology by telephone, 360-407-6280, or by writing to the permit writer at the address listed below.

Industrial Unit Permit Coordinator
Department of Ecology
Southwest Regional Office
P.O. Box 47775
Olympia, WA 98504-7775

The primary author of this permit and fact sheet is John Y. Diamant, P.E.

APPENDIX B--GLOSSARY

1-DMax or 1-day maximum temperature--The highest water temperature reached on any given day. This measure can be obtained using calibrated maximum/minimum thermometers or continuous monitoring probes having sampling intervals of thirty minutes or less.

7-DADMax or 7-day average of the daily maximum temperatures--The arithmetic average of seven consecutive measures of daily maximum temperatures. The 7-DADMax for any individual day is calculated by averaging that day's daily maximum temperature with the daily maximum temperatures of the three days prior and the three days after that date.

Acute Toxicity--The lethal effect of a compound on an organism that occurs in a short period of time, usually 48 to 96 hours.

AKART--The acronym for "all known, available, and reasonable methods of prevention, control and treatment." AKART is a technology-based approach to limiting pollutants from wastewater discharges which requires an engineering judgment and an economic judgment. AKART must be applied to all wastes and contaminants prior to entry into waters of the state in accordance with RCW 90.48.010 and 520, WAC 173-200-030(2)(c)(ii), and WAC 173-216-110(1)(a).

Ambient Water Quality--The existing environmental condition of the water in a receiving water body.

Ammonia--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Annual Average Design Flow (AADF)--The average of the daily flow volumes anticipated to occur over a calendar year.

Average Monthly Discharge Limit--The average of the measured values obtained over a calendar month's time.

Best Management Practices (BMPs)--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD₅--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD₅ is used in modeling to measure the reduction of dissolved oxygen in receiving waters after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass--The intentional diversion of waste streams from any portion of a treatment facility.

Chlorine--Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic Toxicity--The effect of a compound on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Clean Water Act (CWA)--The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Compliance Inspection - Without Sampling--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations. In addition it includes as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the 85 percent removal requirement. Ecology may conduct additional sampling.

Composite Sample--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots.

Construction Activity--Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

Continuous Monitoring--Uninterrupted, unless otherwise noted in the permit.

Critical Condition--The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Detection Limit--See Method Detection Level.

Dilution Factor (DF)--A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the percent effluent fraction e.g., a dilution factor of 10 means the effluent comprises 10 percent by volume and the receiving water 90 percent.

Engineering Report--A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report must contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal Coliform Bacteria--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab Sample--A single sample or measurement taken at a specific time or over as short a period of time as is feasible.

Industrial Wastewater--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Major Facility--A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Maximum Daily Discharge Limit--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Maximum Day Design Flow (MDDF)--The largest volume of flow anticipated to occur during a one-day period, expressed as a daily average.

Maximum Month Design Flow (MMDF)--The largest volume of flow anticipated to occur during a continuous 30-day period, expressed as a daily average.

Maximum Week Design Flow (MWDF)--The largest volume of flow anticipated to occur during a continuous 7-day period, expressed as a daily average.

Method Detection Level (MDL)--The minimum concentration of a substance that can be measured and reported with 99 percent confidence that the pollutant concentration is above zero and is determined from analysis of a sample in a given matrix containing the pollutant.

Minor Facility--A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Mixing Zone--An area that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in state regulations (chapter 173-201A WAC).

National Pollutant Discharge Elimination System (NPDES)--The NPDES (Section 402 of the Clean Water Act) is the federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the state of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both state and federal laws.

pH--The pH of a liquid measures its acidity or alkalinity. It is the negative logarithm of the hydrogen ion concentration. A pH of 7.0 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Peak Hour Design Flow (PHDF)--The largest volume of flow anticipated to occur during a one-hour period, expressed as a daily or hourly average.

Peak Instantaneous Design Flow (PIDF)--The maximum anticipated instantaneous flow.

Quantitation Level (QL)--The smallest detectable concentration of analyte greater than the Detection Limit (DL) where the accuracy (precision & bias) achieves the objectives of the intended purpose. This may also be called Minimum Level or Reporting Level.

Reasonable Potential--A reasonable potential to cause a water quality violation, or loss of sensitive and/or important habitat.

Responsible Corporate Officer--A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or have gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures (40 CFR 122.22).

Technology-based Effluent Limit--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Suspended Solids (TSS)--Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to receiving waters may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

Solid waste--All putrescible and non-putrescible solid and semisolid wastes including, but not limited to, garbage, rubbish, ashes, industrial wastes, swill, sewage sludge, demolition and construction wastes, abandoned vehicles or parts thereof, contaminated soils and contaminated dredged material, and recyclable materials.

State Waters--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Upset--An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limits because of factors beyond the reasonable control of the facility. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water Quality-based Effluent Limit--A limit on the concentration of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into receiving waters.

APPENDIX C--TECHNICAL CALCULATIONS

Several of the Excel® spreadsheet tools used to evaluate a discharger's ability to meet Washington State water quality standards can be found on Ecology's homepage at <http://www.ecy.wa.gov/programs/eap/pwspread/pwspread.html>.

PERFORMANCE-BASED EFFLUENT LIMITS FOR TEMPERATURE									
USE EXCEL TO PERFORM THE LOGNORMAL TRANSFORMATION									
AND CALCULATE THE TRANSFORMED MEAN AND VARIANCE									

APPENDIX D--RESPONSE TO COMMENTS